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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,266	04/20/2001	Ryosuke Higashikata	046601-5089	9290

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EXAMINER

VUONG, JASON DUY ANH

ART UNIT PAPER NUMBER

2626

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/838,266

Applicant(s)

HIGASHIKATA ET AL.

Examiner

Jason D. A. Vuong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-22 and 24-35 is/are allowed.
- 6) ☒ Claim(s) 1, 2, and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10-29-2004</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The application number, 09/744,330, listed in the Information Disclosure Statement is incorrect. The correct application number is 09/838,266. This error should be corrected.

### *Specification*

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Color Processing Method and System with Coverage Restriction."

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 2** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding **Claim 2** Lines 7-8, the phrase "determining any K by use of K..." is considered as indefinite because the limitation appears indistinct and circular since it denotes "K" is determined based on "K".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claim 23** is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,987,168 to Decker et al.

**Regarding Claim 23**, a color processing method used for generating four-color signal including a black component based on an input color signal, the method comprising the steps of:

repeating prediction of amounts of three colors except black (Cyan = 20%, Magenta = 40%, Yellow = 60%, refer to Column 2 Lines 27-29), under the condition that one of the three colors is equalized to 0% successively (Cyan = 0%, refer to Column 2 Line 34), until both two colors out of the three predicted

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from representative color signals of the input color signal have a non-negative value (Magenta = 20%, Yellow = 40%, refer to Column 2 Lines 35-36);

clipping a predicted K between 0% and 100% when the predicted two colors have a non-negative value (Black component = 20%, refer to Column 2 Line 37);  
and

calculating an achromatic K (Black component is calculated, refer to Column 2 Line 37),

wherein K is an amount of the black component (K is inherently known as the black component).

5. **Claim 1, and 2** are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,978,011 to Jacob et al.

Regarding **Claim 1**, a color processing method used for transforming an arbitrary input color signal ("Translating RGB color values...", see Column 3 Line 53) to a four-color signal including a black component ("...to CMYK values", see Column 7 Line 56), the method comprising the step of:

- determining K to satisfy a coverage restriction (“...the maximum toner constraints...”, see Column 4 Lines 27-28) and to maximize a color gamut (“...maximizes the color gamut...”, see Column 4 Line 25),
- wherein K is an amount of the black component (K is inherently known in the printing art as the black component).

Regarding **Claim 2**, a color processing method used for transforming an arbitrary input color signal (“Translating RGB color values...”, see Column 3 Line 53) to a four-color signal including a black component (“...to CMYK values”, see Column 7 Line 56).

The method comprising the steps of:

- determining K corresponding to a representative color signal of the input color signal on a curved plane that satisfies a coverage restriction and uses the color gamut to it's maximum (this is essentially the same as **Claim 1**'s first bullet; therefore, it is rejected in the same way. See Column 4 Lines 25, and 27-28); and
- determining any K by use of K corresponding to the representative color signal (a K amount that satisfies a coverage restriction can be used as “any K”; therefore the K that is addressed in **Claim 1**'s first bullet can be used as “any K”, and it is also rejected in the same way. Also see Column 4 Lines 25, and 27-28),
- wherein K is an amount of the black component (K is inherently known in the printing art as the black component).

***Allowable Subject Matter***

6. **Claims 3-22**, and **24-35** are allowed.

7. The following is an examiner's statement of reasons for allowance: the current invention discloses a color processing method and apparatus used for transforming an input color signal to a four-color signal including a black component.

**Claim 3** cites a color processing method for transforming an input color signal to a four-color signal including a black component. The method comprises steps of generating a first set of plural optimal K corresponding to plural representative color signals of the input color signal that belong to a partial color space reproducible with three colors and a second set of plural optimal K corresponding to plural representative color signals of the input color signal that belong to a curved plane being reproducible with four colors including black and satisfying a coverage restriction, predicting an optimal K corresponding to the input color signal in the input color space based on a model generated from plural pairs of the representative color signals in the input color space and the first or second set of plural optimal K.

**Claim 6** cites a color processing method for transforming an input color signal to a four-color signal including a black component. The method comprises steps of generating a first set of plural optimal K that satisfy the coverage restriction corresponding to plural representative color signals of the input color signal that belong to a partial color space

reproducible with three colors and a second set of plural optimal K corresponding to plural representative color signal of the input color signal that belong to a curved plane being reproducible with four colors including black and satisfying a coverage restriction, predicting an optimal K corresponding to the input color signal in the input color space based on a model generated from plural pairs of the representative color signals in the input color space and the first or second set of plural optimal K.

**Claim 24** cites a color processing method for generating a four-color signal including a black component based on an input color signal. The method comprises: assuming a maximum K is an achromatic K if representative color signal of the input color signal is reproducible with the four-color signal including the achromatic K clipped between 0% and 100%, and obtaining the maximum K by calculating a minimum K from the representative color signals and thereafter by searching between the minimum K and 100%, if the representative color signal is not reproducible with the four-color signal including the achromatic K clipped between 0% and 100%.

**Claim 26** cites a computer-readable recording medium that stores a program that makes a computer execute the steps of: generating a first set of plural optimal K corresponding to plural representative color signals of the input color signal that belong to a partial color space reproducible with three colors and a second set of plural optimal K corresponding to plural representative color signals of the input color signal that belong to a curved plane being reproducible with four colors including black and



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satisfying a coverage restriction, predicting an optimal K corresponding to the input color signal in the input color space based on a model generated from plural pairs of the representative color signals in the input color space and the first or second set of plural optimal K.

**Claim 29** cites a color processing apparatus for generating a four-color signal including black from an input color signal. The apparatus comprises an optimal K calculation part that predicts an optimal K corresponding to the color signal in the input color space based on a model generated from plural pairs of a representative color signal of the input color signal in the input color space and the optimal K corresponding to the representative color signal wherein the optimal K calculation part uses plural representative color signals that belong to a partial color space that is a color gamut reproducible with three colors and plural representative color signals that belong to the curved plane that is reproducible with four colors including black and satisfies the coverage restriction.

**Claim 32** cites a color processing apparatus for generating a four-color signal including black from an input color signal. The apparatus comprises an optimal K calculation part that predicts an optimal K corresponding to the input color signal in the input color space based on a model generated from plural pairs of a representative color signal in the input color space and an optimal K corresponding to the representative color signal wherein the optimal K calculation part uses plural representative color signals that

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belong to a partial color space that is a color gamut reproducible with three colors and satisfies the coverage restriction and plural representative color signals that belong to the curved plane that is reproducible with four colors including black and satisfies the coverage restriction.

Such features in combination with other elements of the claims are not disclosed or suggested by the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication should be directed to Jason Vuong at 703-306-4157.

  
KIMBERLY WILLIAMS  
SUPERVISORY PATENT EXAMINER